

Submission to the Alberta Coal Policy Committee

June 3, 2021

Executive Summary:

This paper is submitted to the Coal Policy Committee to ensure that the Committee is aware of, and has access to some important historical information regarding the potential impacts of mountain coal mining on water quality and aquatic life of streams and rivers draining the eastern slopes of the Rocky Mountains. Although the Committee may already be aware of this information, I feel it is important that it is brought forward and used to inform the Committee's deliberations in reaching its final recommendations on the future of coal mining in the Alberta Rockies and Foothills.

Background:

I am a retired former employee of Alberta Environment and Parks. From 1995 to 2003 I was in the position of Regional Environmental Manager in the Edson office of the department. During this time water quality monitoring data collected in the upper McLeod River and upper Smoky River systems documented elevated levels of selenium from geologic sources into surface water due to coal mining in these watersheds. Because of concerns with the potential effects of selenium on aquatic life in these watersheds, the Alberta Selenium Working Group (SWG) was formed in 1999 to coordinate efforts to assess and manage potential selenium impacts from the mountain coal mines in west-central Alberta. The Working Group was initially chaired by myself and included representatives from the provincial and federal governments and the coal industry.

The SWG held an initial technical workshop in 2000 to develop a workplace to examine the selenium issue. Based on this workplan the Working Group convened a Selenium Science Panel in 2005 consisting of selenium experts from Canada and the United States.

The Panel submitted its report and recommendations in September 2005. The Panel concluded that effects of high selenium concentrations in mountain streams were occurring and that further work was required to quantify these effects and assess options for the treatment and management of selenium releases.

A subsequent Selenium Fish Science Panel was convened by the Selenium Working Group in 2007 to undertake some of the work related to potential fisheries impacts. The Panel concluded that although data sets were limited because of low fish populations in the watersheds, Selenium impacts were occurring and the risk is likely to increase with further mining activities.

Alberta Selenium Reports and Studies:

All of the reports produced by the Selenium Working Group and the Science Panels are listed as follows:

1. *Concentrations of selenium in surface water, sediment and fish from the McLeod, Pembina and Smoky Rivers : results of surveys from fall 1998 to fall 1999 : interim report*
2. *Fish diet analysis McLeod and Smoky River Drainages*
3. *Results of aquatic studies in the McLeod and Upper Smoky River systems*
4. *Selenium concentrations in the tissues of fish from the Upper McLeod and Upper Smoky River systems*
5. *Scientific review and workshop on selenium at Alberta mountain coal mines held in Hinton, Alberta, Canada on June 28 & 29, 2005 by the Selenium Science Panel Final Report*
6. *Evaluation of treatment options to reduce water-borne selenium at coal mines in west-central Alberta*
7. *Alberta Selenium Working Group acceptance of the final report of the Selenium Fish Science Panel Workshop*

These reports are all freely available on the Alberta Open Government website at:

<https://open.alberta.ca/publications?q=selenium+&sort=score+desc>

The reports represent a substantial body of work that was conducted by Alberta Environment once selenium was identified as an issue of concern in the late 1990's. Unfortunately I am not aware of any follow up that was done after 2010. As often happens in government the reports were shelved, staff moved on to other things and there is no further documentation on the selenium issue on the open government site.

I strongly encourage the Committee to read the reports and consider this information during their deliberations. Some of the information is of a technical and scientific nature and it would be useful for the Committee to hear from AEP staff to explain the science behind the selenium issue. I know a number of the staff who worked on the issue in the early 2000's are still employed at AEP and could provide an excellent summary of the issue and the work that was done at that time.

Current Status:

I heard your Committee Chairman Mr. Ron Wallace on a CBC call in show recently. He advised that the committee did receive a briefing from Alberta Energy Regulator staff on the selenium issue. Although the AER does have water quality specialists on staff, I do not believe they have the experience and history on the selenium issue that Alberta Environment and Protection staff have. The work that was done in the early 2000's has particular value since we also engaged scientists who are recognized as the leading experts on selenium contamination from across North America.

Although the coal industry may say otherwise, I believe the selenium issue is far from resolved. Treatment options have been developed and assessed but my understanding is that these have proven successful only at the pilot scale. The challenge of treating and managing a contaminant that is ubiquitous across the minesites remains outstanding. The recent \$60 million fine levied under the federal Fisheries Act against Teck Coal for selenium contamination in BC's Elk Valley is testament to the fact that the issue is far from resolved.

Given the nature of the concerns around the selenium issue and other environmental impacts of open pit mountain coal mining, the Coal Committee should seriously question whether new and expanded coal mines should be permitted in Alberta's Eastern slopes. Experience has shown that once the rock layers are disturbed and exposed by mining, leaching of selenium and other contaminants is inevitable and very difficult to control. This is also an impact that continues long after mining is complete and as we have seen at other mine sites such as the bankrupt Smoky River Coal, is an issue which is often inherited by government and the people of Alberta.

Thank you for considering my submission.

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